

CLAIMS

What is claimed is:

- 1           ①. An apparatus for finding objects in a computer  
2 including a display and a pointing device with which a  
3 user drags a pointer on the display, comprising:  
4           an input that receives an input signal to indicate  
5 a drag operation;  
6           memory that stores a plurality of objects including  
7 enclosures in the memory, wherein enclosures comprise  
8 objects which may enclose other objects;  
9           window opening logic, coupled with the display, that  
10 draws windows on the display corresponding to opened  
11 enclosures, wherein a window for an opened enclosure  
12 includes identifiers within the window corresponding to  
13 objects enclosed by the opened enclosure; and  
14           temporary window logic, coupled to the display and  
15 the pointing device, that opens a temporary window for  
16 the particular enclosure to display identifiers within  
17 the temporary window corresponding to objects enclosed by  
18 the particular enclosure, in response to a drag during a  
19 drag operation of the pointer over an identifier  
20 corresponding to a particular enclosure.
- 1           2. The apparatus of claim 1, further including:  
2           logic, coupled to the temporary window logic and to  
3 the pointing device that closes the temporary window, in  
4 response to a drag during the drag operation of the  
5 pointer outside the temporary window.

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1           8.    The apparatus of claim 1, wherein the temporary  
2    window logic includes:

3 logic that determines whether the display includes  
4 an existing window for the particular enclosure during  
5 the drag operation to open a temporary window, and if so,  
6 then removes the existing window from the display; and  
7 logic that draws the temporary window on the display  
8 over the identifier corresponding to the particular  
9 enclosure.

1           9.    The apparatus of claim 8, wherein the temporary  
2    window logic further includes:

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3      a routine that graphically indicates on the display
4      a zoom of the existing window to the temporary window.
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1            10. The apparatus of claim 8, further including:

2       logic, coupled to the temporary window logic and the  
3       pointing device that closes the temporary window, and  
4       redraws the existing window on the display, in response  
5       to a drag of the pointer outside the temporary window  
6       during a drag operation.

1           11. The apparatus of claim 1, wherein the temporary  
2   window logic includes:

3 logic, coupled to the display and the pointing  
4 device that enables a temporary window selector  
5 responsive to additional user input to cause the  
6 temporary window to be opened, in response to a drag  
7 during a drag operation of the pointer over an icon  
8 corresponding to a particular enclosure.

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1           12. The apparatus of claim 11, wherein the  
2 temporary window selector includes a selector graphic  
3 over the identifier for the particular enclosure having  
4 a first side and a second side, and the additional user  
5 input includes drag of the pointer to the first side to  
6 open the temporary window.

1           13. The apparatus of claim 1, wherein identifiers  
2 for enclosures include a temporary window region and the  
3 temporary window logic includes:

4           logic, coupled to the display and the pointing  
5 device that causes the temporary window to be opened, in  
6 response to a drag during a drag operation of the pointer  
7 over the temporary window region of an identifier  
8 corresponding to a particular enclosure.

1           14. The apparatus of claim 1, wherein the temporary  
2 window logic includes:

3           logic that opens additional temporary windows as  
4 current temporary windows in response to a drag during  
5 the drag operation of the pointer over an identifier  
6 within current temporary windows.

1           15. The apparatus of claim 14, further including:  
2           logic, coupled to the temporary window logic and to  
3 the pointing device that closes the additional temporary  
4 windows except for the current temporary window, in  
5 response to termination of the drag operation with the  
6 pointer inside the current temporary window.

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1           16. The apparatus of claim 14, further including:  
2           logic, coupled to the temporary window logic and to  
3           the pointing device, that after termination of the drag  
4           operation closes a particular temporary window opened  
5           during the drag operation in response to movement of the  
6           pointer out of the particular temporary window.

1           17. The apparatus of claim 14, further including:  
2           logic, coupled to the temporary window logic and to  
3           the pointing device, that after termination of the drag  
4           operation closes temporary windows opened during the drag  
5           operation in response to movement of the pointer out of  
6           the temporary windows, except for particular temporary  
7           windows selected by user input before movement of the  
8           pointer out of the temporary windows.

1           18. An apparatus for finding objects within a  
2           hierarchy of enclosures in a computer including a display  
3           and a pointing device with which a user drags a pointer  
4           on the display, comprising:  
5           memory to store a plurality of objects including at  
6           least one hierarchy of enclosures in the memory, wherein  
7           enclosures comprise objects which may enclose other  
8           objects;  
9           window opening logic, coupled with the display, that  
10          draws windows on the display corresponding to opened  
11          enclosures, wherein a window for an opened enclosure  
12          includes identifiers within the window corresponding to  
13          objects enclosed by the opened enclosure;  
14          an input to receive an input signal to indicate a  
15          drag operation;  
16          temporary window opening logic, coupled to the  
17          display and the pointing device that opens a current

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18 temporary window for a particular enclosure to display  
19 identifiers within the current temporary window  
20 corresponding to objects enclosed by the particular  
21 enclosure, in response to a drag during a drag operation  
22 of the pointer over an identifier corresponding to the  
23 particular enclosure, including logic that maintains a  
24 hierarchy of opened temporary windows and the current  
25 temporary window; and  
26 temporary window closing logic, coupled to the  
27 temporary window opening logic and the pointing device,  
28 that closes the current temporary window in response to  
29 a drag during the drag operation of the pointer outside  
30 the current temporary window.

1 19. The apparatus of claim 18, wherein the  
2 temporary window closing logic includes logic that closes  
3 temporary windows in the hierarchy except the current  
4 temporary window, in response to a drag operation that  
5 ends in the current temporary window.

1 20. The apparatus of claim 18, wherein the  
2 temporary window closing logic includes logic that after  
3 termination of the drag operation closes a particular  
4 temporary window opened during the drag operation in  
5 response to movement of the pointer out of the particular  
6 temporary window.

1           21. The apparatus of claim 18, wherein the  
2 temporary window closing logic includes logic that after  
3 termination of the drag operation closes temporary  
4 windows opened during the drag operation in response to  
5 movement of the pointer out of the temporary windows,  
6 except for particular temporary windows selected by user  
7 input before movement of the pointer out of the temporary  
8 windows.

1           22. The apparatus of claim 18, further including:  
2 logic that places a particular object into the  
3 particular enclosure, in response to a drag operation  
4 beginning from a position of a selected identifier  
5 corresponding to the particular object to another  
6 position within the current temporary window.

1           23. The apparatus of claim 18, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display over the pointer.

1           24. The apparatus of claim 18, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display over the identifier  
4 corresponding to the particular enclosure.

1           25. The apparatus of claim 18, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display centered over the  
4 pointer.

1           26. The apparatus of claim 18, wherein the  
 2 temporary window opening logic includes:  
 3           logic that determines whether the display includes  
 4 an existing window for the particular enclosure during  
 5 the drag operation to open a current temporary window,  
 6 and if so, then removes the existing window from the  
 7 display.

1           27. The apparatus of claim 18, wherein the  
 2 temporary window opening logic includes:  
 3           logic that determines whether the display includes  
 4 an existing window for the particular enclosure during  
 5 the drag operation to open a current temporary window,  
 6 and if so, then removes the existing window from the  
 7 display; and  
 8           logic that draws the current temporary window on the  
 9 display over the identifier corresponding to the  
 10 particular enclosure.

1           28. The apparatus of claim 27, wherein the  
 2 temporary window opening logic further includes:  
 3           logic that graphically indicates on the display a  
 4 zoom of the existing window to the current temporary  
 5 window.

1           29. The apparatus of claim 27, further including:  
 2           logic that redraws the existing window on the  
 3 display when the temporary window in the hierarchy  
 4 corresponding to the existing window is closed.



1           30. The apparatus of claim 18, wherein the  
2 temporary window opening logic includes:  
3           logic, coupled to the display and the pointing  
4 device, that enables a temporary window selector  
5 responsive to additional user input to cause the current  
6 temporary window to be opened, in response to a drag  
7 during a drag operation of the pointer over an identifier  
8 corresponding to a particular enclosure.

1           31. The apparatus of claim 30, wherein the  
2 temporary window selector includes a selector graphic  
3 over the identifier for the particular enclosure having  
4 a first side and a second side, and the additional user  
5 input includes drag of the pointer to the first side to  
6 open the current temporary window.

1           32. The apparatus of claim 18, wherein identifiers  
2     for enclosures include a temporary window region and the  
3     temporary window opening logic includes:  
4           logic, coupled to the display and the pointing  
5     device, that causes the current temporary window to be  
6     opened in response to a drag during a drag operation of  
7     the pointer over the temporary window region of an  
8     identifier corresponding to a particular enclosure.

33. An apparatus for copying or moving objects within a hierarchy of enclosures in a computer including a display and a pointing device with which a user drags a pointer on the display, comprising:

- memory to store a plurality of objects including at least one hierarchy of enclosures in the memory, wherein enclosures comprise objects which may enclose other objects;
- window opening logic, coupled with the display, that draws windows on the display corresponding to opened enclosures, wherein a window for an opened enclosure includes identifiers within the window corresponding to objects enclosed by the opened enclosure;
- an input that receives an input signal to indicate a drag operation;
- temporary window opening logic, coupled to the display and the pointing device, that opens a current temporary window for a particular enclosure to display identifiers within the current temporary window corresponding to objects enclosed by the particular enclosure, in response to a drag during a drag operation of the pointer over an identifier corresponding to the particular enclosure, including logic that maintains a hierarchy of opened temporary windows and the current temporary window;
- temporary window closing logic, coupled to the temporary window opening logic and the pointing device, that closes the current temporary window in response to a drag during the drag operation of the pointer outside the current temporary window; and
- object placing logic that places a particular object into the particular enclosure of the current temporary window in response to a drag operation beginning from a

34 position of a selected identifier corresponding to the  
35 particular object to another position within the current  
36 temporary window.

1 34. The apparatus of claim 33, wherein the  
2 temporary window closing logic includes logic that closes  
3 temporary windows in the hierarchy except the current  
4 temporary window, in response to a drag operation that  
5 ends in the current temporary window.

1 35. The apparatus of claim 33, wherein the  
2 temporary window closing logic includes logic that after  
3 termination of the drag operation closes a particular  
4 temporary window in the hierarchy opened during the drag  
5 operation in response to movement of the pointer out of  
6 the particular temporary window.

1 36. The apparatus of claim 33, wherein the  
2 temporary window closing logic includes logic that after  
3 termination of the drag operation closes temporary  
4 windows in the hierarchy opened during the drag operation  
5 in response to movement of the pointer out of the  
6 temporary windows, except for particular temporary  
7 windows selected by user input before movement of the  
8 pointer out of the temporary windows.

1 37. The apparatus of claim 33, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display over the pointer.

1 38. The apparatus of claim 33, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display over the identifier  
4 corresponding to the particular enclosure.

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1           39. The apparatus of claim 33, wherein the  
2 temporary window opening logic draws the current  
3 temporary window on the display centered over the  
4 pointer.

1           40. The apparatus of claim 33, wherein the  
2 temporary window opening logic includes:

3           logic that determines whether the display includes  
4 an existing window for the particular enclosure during  
5 the drag operation to open a current temporary window,  
6 and if so, then removes the existing window from the  
7 display.

1           41. The apparatus of claim 33, wherein the  
2 temporary window opening logic includes:

3           logic that determines whether the display includes  
4 an existing window opened by the window opening logic for  
5 the particular enclosure during the drag operation to  
6 open a current temporary window, and if so, then removes  
7 the existing window from the display; and

8           logic that draws the current temporary window on the  
9 display over the identifier corresponding to the  
10 particular enclosure.

1           42. The apparatus of claim 41, wherein the  
2 temporary window opening logic further includes:

3           logic that graphically indicates on the display a  
4 zoom of the existing window to the current temporary  
5 window.

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1           43. The apparatus of claim 41, further including:  
2           logic that redraws the existing window on the  
3 display when the temporary window in the hierarchy  
4 corresponding to the existing window is closed.

1           44. The apparatus of claim 33, wherein the  
2 temporary window opening logic includes:  
3           logic, coupled to the display and the pointing  
4 device, that enables a temporary window selector  
5 responsive to additional user input to cause the current  
6 temporary window to be opened, in response to a drag  
7 during a drag operation of the pointer over an identifier  
8 corresponding to a particular enclosure.

1           45. The apparatus of claim 44, wherein the  
2 temporary window selector includes a selector graphic  
3 over the identifier for the particular enclosure having  
4 a first side and a second side, and the additional user  
5 input includes drag of the pointer to the first side to  
6 open the current temporary window.

1           46. The apparatus of claim 33, wherein identifiers  
2 for enclosures include a temporary window region and  
3 temporary window opening logic includes:  
4           logic, coupled to the display and the pointing  
5 device, that causes the current temporary window to be  
6 opened in response to a drag during a drag operation of  
7 the pointer over the temporary window region of an  
8 identifier corresponding to a particular enclosure.